DEPARTMENT of ENVIRONMENTAL SERVICES Water Supply & Pollution Control Division - Biology Bureau

LAKE TROPHIC DATA

MORPHOMETRIC:

Lake: PINE ISLAND POND Town: MANCHESTER	Lake Area (ha): Maximum depth (m):	17.16 3.0
County: Hillsborough	Mean depth (m):	1.5
River Basin: Merrimack	Volume (m³):	265000
Latitude: 42°55'53" N	Relative depth:	0.7
Longitude: 71°27'07" W	Shore configuration:	2.31
Elevation (ft): 151	Areal water load (m/yr)	: 503.0
Shore length (m): 3385	Flushing rate (yr ⁻¹):	326.0
Watershed area (ha): 17889.2		

% watershed ponded: 7.7 Lake type: artificial

		t
BIOLOGICAL:	2 February 1998	24 July 1997
DOM. PHYTOPLANKTON (% TOTAL) #1	SPARSE - NO DOMINANT	DINOBRYON 85%
#2		MELOSIRA 10%
#3		CERATIUM 5%
PHYTOPLANKTON ABUNDANCE (units/mL)		
CHLOROPHYLL-A (µg/L)		14.82
DOM. ZOOPLANKTON (% TOTAL) #1	NONE OBSERVED	DAPHNIA 26%
#2		NAUPLIUS LARVA 20%
#3		CYCLOPOID COPEPOD 20%
ROTIFERS/LITER		35
MICROCRUSTACEA/LITER		147
ZOOPLANKTON ABUNDANCE (#/L)		206
VASCULAR PLANT ABUNDANCE		Common/Abun
SECCHI DISK TRANSPARENCY (m)		1.4
BOTTOM DISSOLVED OXYGEN (mg/L)	13.3	7.8
BACTERIA (E. coli, #/100 ml) #1		7
#2		6
#3		

SUMMER THERMAL STRATIFICATION:

not stratified

Depth of thermocline (m): None Hypolimnion volume (m^3) : None Anoxic volume (m^3) : None

CHEMICAL:			PINE ISLA MANCHESTE		
	2 Febru	uary 1998	24 J	July 1997	
DEPTH (m)	2.0		1.0		2.0
pH (units)	6.2		7.2	**************************************	7.4
A.N.C. (Alkalinity)	7.3		20.6		20.4
NITRATE NITROGEN	0.37		0.14		0.15
TOTAL KJELDAHL NITROGEN	0.80		0.60		0.40
TOTAL PHOSPHORUS	0.011		0.018		0.021
CONDUCTIVITY (µmhos/cm)	330.4		290.4		291.1
APPARENT COLOR (cpu)	42		50		50
MAGNESIUM			2.19		
CALCIUM			11.9		
SODIUM			41.5		
POTASSIUM	· · · · · · · · · · · · · · · · · · ·		1.96		
CHLORIDE	92		70		70
SULFATE	12		7		7
TN : TP	106		41		26
CALCITE SATURATION INDEX			1.7		

All results in mg/L unless indicated otherwise

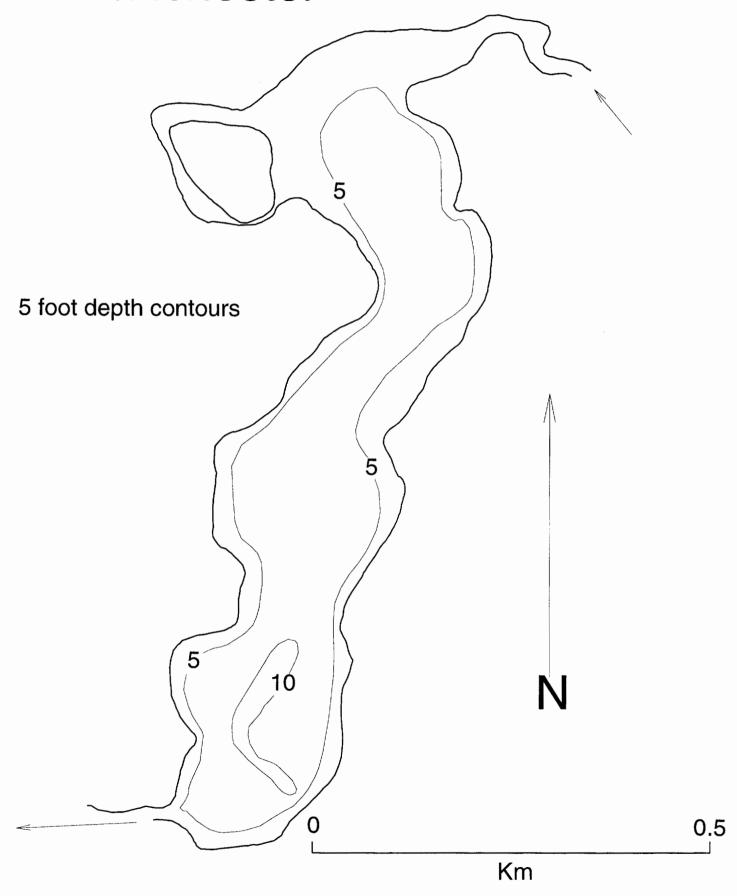
TROPHIC CLASSIFICATION: 1997

D.O.	S.D.	PLANT	CHL	TOTAL	CLASS
**	4	4	3	11	Eutro.

COMMENTS:

- 1. This pond was previously surveyed in 1980 and was also classified eutrophic at that time.
- 2. AKA Goffs Falls
- 3. This is an impoundment on Cohas Brook, which is the outlet stream from Lake Massabesic, the public water supply source for the City of Manchester. The watershed area, and related calculations such as flushing rate, include the Massabesic watershed. However, much of the Massabesic water enters Manchester's public water supply distribution system and does not exit the lake through the outlet. The actually flushing rate of Pine Island Pond is much less than the reported value.
- 4. Many ducks were observed; bryozoans (*Pectinatella magnifica*) were present on the back side of the island

Pine Island Pond Manchester



FIELD DATA SHEET

LAKE: PINE ISLAND POND TOWN: MANCHESTER

DATE: 07/24/97 WEATHER: HAZY SUN

DEPTH (M)	TEMP (°C)	*DISSOLVED OXYGEN	OXYGEN SATURATION		
0.1	23.4	9.1	106 %		
0.5	23.4	9.1	106 %		
1.0	23.3	9.0	105 %		
1.5	23.3	8.8	101 %		
2.0	23.1	8.6	99 %		
2.5	22.8	7.8	88 %		
	1				

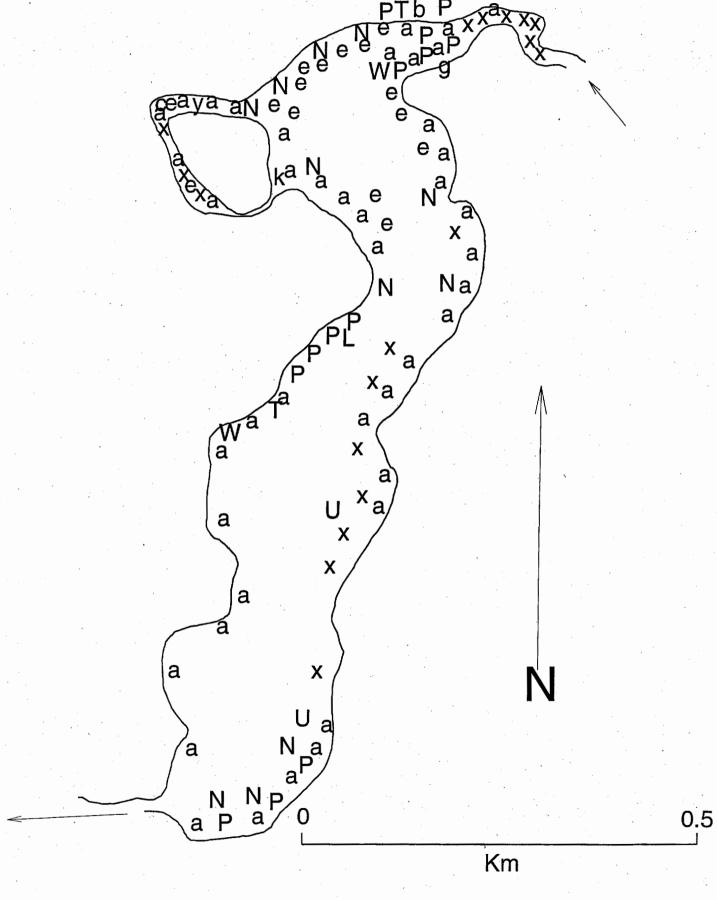
SECCHI DISK (m): 1.4 COMMENTS:

BOTTOM DEPTH (m): 2.6

TIME: 1100

*Dissolved oxygen values are in mg/L

Pine Island Pond Manchester



AQUATIC PLANT SURVEY

LAK	E: PINE ISLAND POND	TOWN: MANCHESTER	DATE: 07/24/97	
T/	PLANT	NAME	ABUNDANCE	
Кеу	GENERIC	COMMON	ABUNDANCE	
P	Pontederia cordata	Pickerelweed	Common	
Y	Nuphar	Yellow water lily	Scattered	
N	Nymphaea	White water lily	Common	
a	Peltandra virginica	Arrow arum	Common	
е	Elodea nuttallii	Waterweed	Common/Abun	
т	Typha	Cattail	Sparse	
b	Scirpus	Bulrush	Sparse	
Х	Wolffia	Watermeal	Common/Abun	
W	Potamogeton natans	Floating-leaf pondweed	Scattered	
g	Myrica gale	Sweet gale	Sparse	
S	Sparganium	Bur reed	Sparse	
L	Lysimachia terrestris	Swampcandle	Sparse	
С	Ceratophyllum demersum	Coontail	Scattered	
k	Potamogeton	Pondweed	Scattered	
υ	Utricularia	Bladderwort	Scattered	
· · · · · · · · · · · · · · · · · · ·		V-100-100-100-100-100-100-100-100-100-10		

OVERALL ABUNDANCE: Common/Abun

GENERAL OBSERVATIONS:

- 1. Water was very dark and turbid with poor visibility. Submerged plant growth was probably much more abundant then listed on the map.
- 2. Plants were very abundant around the island, along the northern shoreline and in the inlet. Wolffia was abundant (thick surface scums) on the backside of the island and in the inlet.
- 3. Emergents were common/abundant in the northern end and scattered in the rest of the pond; submerged plants were common/abundant around the entire pond--plants were present whenever the bottom was visible.